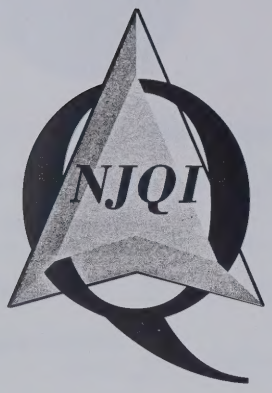
National Partnership for Highway Quality

2001 NPHQ Achievement Award

Routes 4 & 17 Interchange Reconstruction Project

Submitted by New Jersey Department of Transportation

May 3, 2001



Mission Statement

The purpose of the New Jersey Quality Initiative is to promote implementation of quality principles and practices throughout New Jersey's transportation industry through:

Proactive Leadership
Communication
Partnering
Quality Programs and Initiatives

NJ Department of Transportation
Quality Management Services
PO Box 600
Trenton, NJ 08625

May 1, 2001

NPHQ Achievement Award
C/O Bob Templeton
11907 West Highway 290
Austin, Texas 78737

Dear Mr. Templeton,

On behalf of the New Jersey Quality Initiative and the Awards Committee we wish to present our nominee for the NPHQ Achievement Award. The project, the replacement of an aging cloverleaf in one of the most congested areas of the country, exemplified all the elements of a true partnership. The Committee reviewed a host of applicants for the New Jersey award and we are pleased to report a two-fold increase in participation in the awards program.

Thank you for helping New Jersey recognize quality in the design and construction of transportation projects. If you need any assistance regarding the review of the application please feel free to contact me at 609-530-4439.

Sincerely,

Dr. Ernest "Bub" Kovacs
Executive Secretary

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2001 NPHQ ACHIEVEMENT AWARD

Nomination Form

This form is for State Quality Initiative Steering Committees to use in nominating highway projects for the NPHQ Achievement Award.

Project State: New Jersey

Project Location Description: Routes 4 & 17 Interchange in Paramus, New Jersey

Project Name*: Routes 4 & 17 Interchange Reconstruction Project

Team Members:

Owner: New Jersey Department of Transportation

Construction Manager (if other than owner): N/A

Contractor: Joint Venture: Gardner M. Bishop, Inc., Joseph M. Sanzari, Inc. and J. Fletcher Creamer & Son, Inc.

Designer: Parsons Brinckerhoff-FG, Inc.

Subcontractors: Archer Steel Construction Co., Inc.; Tilcon New York; Creamer Environmental, Inc.; Kevco Electric, Inc.; Statewide Striping Corp.; and T. Fiore Demolition, Inc.

Significant Material Suppliers: Structural Steel:High Steel Structures, Inc.; Concrete:Blue Circle Materials; Asphalt:Tilcon New Jersey; Mechanically Stabilized Earth Wall:The Reinforced Earth Company

Project Start Date: Ground Breaking - October 19, 1998

Substantial Completion Date (must be no later than December 31, 2000): November 1999

Brief Project Description: The New Jersey Department of Transportation's Routes 4 & 17 Interchange Reconstruction Project was a $120 million overhaul of a 1932 cloverleaf. In 1997, the Bergen County interchange was plagued by some of the most severe traffic problems in the state, stifling the area's growth. Through a groundbreaking team effort, NJDOT completed the overhaul 17 months early, on Thanksgiving of 1999. Daily traffic flow was maintained and public support remained strong throughout.

*This name will be used in promotional materials for the award.

Mail completed nomination form, along with narrative and appendices (see page 3), by May 1, 2001 to:

NPHQ Achievement Award
c/o Bob Templeton
11907 W. Highway 290
Austin, Texas 78737

2001 NPHQ

Project Overview

Routes 4 & 17 Interchange Reconstruction Project

Considered state-of-the-art for its time, the Routes 4 & 17 Interchange in Paramus, New Jersey, was built as a highway cloverleaf in 1932. Originally designed to accommodate 9,000 cars in the peak hour, by 1998 the 66-year-old interchange was deteriorating under the stress of 19,000 (in peak hours), or 285,000 vehicles and buses a day. It had become a main transportation connector for one of the most densely populated regions in the state, offering access to Routes 208 and 46, I-287, I-80, the Garden State Parkway, the New Jersey Turnpike and the George Washington Bridge.

The interchange is also central to the region's economy. It is well known as the "Heart" of Bergen County, which has a job base of over 500,000 workers, and is home to no fewer than 19 shopping malls. Traffic at the interchange was long considered the most severe in the area; even the country. In 1998, the New Jersey Department of Transportation (NJDOT) began a course of action that, when completed, would serve as a model of highway construction because of its minimal impact on traffic flow and the extraordinary public support it received.

NJDOT began a $120 million overhaul, with the unprecedented goal of completely replacing a cloverleaf interchange while maintaining the travel lanes for the 285,000 motorists using it on a daily basis. Unlike similar large projects that are built on new alignments and without carrying existing traffic, the 4 & 17 interchange project constructed two new tri-level flyovers, a new western auxiliary interchange adjacent to the main interchange, new ramps, and new travel lanes. It also replaced two existing bridge structures. All of this while catering to the traffic needs of one the most urbanized areas in the U.S.

The complexity of the project was matched only by the interchange's vitality to the metropolitan region surrounding it. Therefore, NJDOT decided that only a multi-disciplinary team effort would stand a chance of tackling it. In a groundbreaking process, NJDOT coordinated with and utilized partners from intergovernmental agencies and businesses as a means of conquering each element of the project--areas such as funding, design, construction engineering, property acquisition, traffic operations, utility relocation, commuter services and community and public outreach. At the heart of this team effort was the creation of an organized task force to coordinate each of the various players. The project, originally scheduled for completion in April 2001, was opened to traffic during Thanksgiving week of 1999, 17 months ahead of schedule. It was immediately proclaimed the "Highway to Heaven" with "No more bottlenecks" in the headlines of local press, and was hailed a reconstruction that would result in a "significant reduction in the number of accidents."

Achievement Award

2001 NPHQ Achievement Award

"From Sprawl, to Crawl, to Enthrall"

Routes 4 & 17 Interchange Reconstruction Project

As this September 12, 1999, New York Times headline indicates, even the media seemed aware that successful completion of the Routes 4 & 17 Interchange Reconstruction Project was a step-by-step process. While the timely fulfillment of any project rests on adherence to smaller goals, the completion of an estimated 30-month project in only 14 months is indicative of nearly flawless planning. From contract and labor development to final construction detail, this project demonstrates that only the highest quality process will obtain the highest quality results.

Throughout the entire project, the New Jersey Department of Transportation, the Federal Highway Administration (FHWA), NJ TRANSIT, designer Parsons Brinckerhoff, the contractor team of Bishop-Sanzari-Fletcher Creamer, Inc., and the specially appointed Routes 4 & 17 task force (consisting of elected officials, various government agencies, transportation professionals, community leaders and local businesses) maintained nearly perfect coordination. As such, the group is proof that on any large project, logical division of labor and reliance on individual expertise are vital for quality results.

The quality process began early on. Through the innovative compilation of variously sourced Federal dollars, the 4 & 17 team put together an "advanced construction" fund. It was used to fill funding gaps common at project inception, and therefore the team was able to start the entire reconstruction process before regular moneys existed. The project was under way one year early.

Also a standout among the economics of this team's action plan was the inclusion of both incentive and disincentive clauses within the construction contract. Using state funds, $3.5 million was made available to the group of contractors as encouragement for early completion of the project. Set on actual day-to-day increments, the incentive decreased consistently as time passed. In addition to the obvious increase in labor and construction hours set by contractors (crews started at 10 hours/day with Saturdays and evenings, then accelerated to 20 hours/day, 6 days a week), a key result of the clause was a boosted fiscal confidence among the contractors. Local agreement to lift the Sunday "Blue Laws" allowed the project to become a 20/7 project. Increased spending on supplies and labor meant a faster acquisition of materials as well as peaked worker enthusiasm that was noticeable to outsiders. "I frequently see people working!" wrote one commuter via E-mail, "Not just three or four people, but ALL THE PEOPLE! I'm shocked and amazed at this accomplishment."

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Routes 4 & 17 Interchange Reconstruction Project

Achievement Award

Completed by a large team, much of the success of this project was based upon communication among players. In addition to the weekly meeting of representatives of DOT Construction, Newark's Traffic Operations Center (TOC North) and the contractor, lines of communication were kept open at all times to assess upcoming lane/ramp closures and other traffic impacts. The task force's value was also based on open discussion of these elements. To that end, TOC North set up a fax network between members, and together with task force representatives TRANSCOM (the tri-state area's Traffic Operations Center) and Meadowlink (commuter services specialists) coordinated the dissemination of information. The individual specialists involved were always kept informed, their skills consistently utilized.

Because both the process and result of this project shaped and were shaped by the lives of the public, success hinged upon communication with involved citizens. Elements of the action plan that reflect this include: an innovative Web site designed to inform motorists and surrounding businesses of traffic information and alternative routes, the 1-877-NJROADS toll-free hotline set up to respond to customer concerns, and also the creation of an extensive radio, local cable TV, and print media campaign to outline construction updates and transit services. In addition, customer oriented brochures were distributed to commuters, specifically at area malls, to advise them of available transit services.

Compromising public safety for an early completion date is unacceptable, and for that reason the implementation of rigorous safety measures was a significant accomplishment of the Routes 4 & 17 Interchange Reconstruction Project. On the routes 4, 17, 80 and 208 themselves, 12 remotely programmable portable variable message signs advised motorists daily of all lane and ramp closures and roadway and traffic shifts. Further advisory measures on Routes 4 and 17 included DOT expediting the installation of two closed circuit TV locations with cameras connected to and controlled by the Bergen County Police Station, as well as the installation of highway advisory radio stations along both routes. With such systems in place, the Bergen County Traffic Incident Management Response Team was able to respond and coordinate quickly, and accidents were cleared promptly.

Clearly, this completion of a $120 million highway engineering project in half the estimated time was the result of a constantly communicating group of experts. As will become clear, the next feat of this team was continuous progress with minimal disruption of commuter patterns. The result was the nearly constant support of the commuters and residents of Bergen County.

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Routes 4 & 17 Interchange Reconstruction Project

Achievement Award

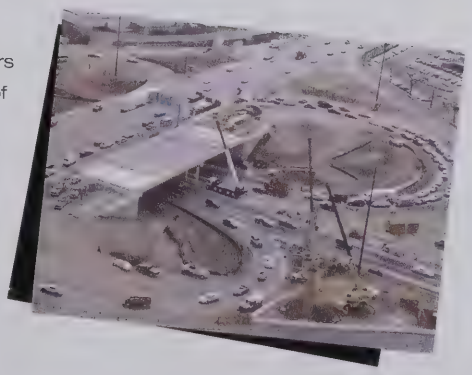
"A gift for drivers"

This headline from a July, 1999, issue of local paper The Record (the largest newspaper servicing the immediate area) represents an aspect of the Routes 4 & 17 Interchange Reconstruction that was a consistent focus of the media: the undeniably positive effect on commuters and residents that the completed interchange would have, and the sensitivity to all stakeholders during construction.

In addition to the valuable communication networks previously mentioned, the 4 & 17 team made other concerted efforts to stress that the public's role in the project was vital, and that channels were available to keep commuters and residents informed. While the Web site prompted large amounts of public opinion and support via E-mail, other methods of information dissemination were implemented. Representing the most direct format, Community Outreach Programs intended to educate interested groups on changes and updates were presented. In addition, the nearly 500 area businesses that would feel the effects of construction were contacted and kept apprised of changes. Planned presentations were given to various businesses, both local and others affected by the construction. Less direct, but just as important, was the use of the printed word to keep the public informed. Brochures and newsletters--ten thousand in all--were sent out; the project team worked with Bergen County newspapers to advertise the latest construction news. The public was able to plan around lane shifts, detours and changes in traffic conditions.

As they did for the contractors, the Routes 4 & 17 team also carried out funding strategies designed to benefit the customer. Such strategies are a reflection of an action plan with customer focus as a top priority. For example, $4 million of federal project money, funded by the FHWA, was allotted toward a two-part bus service enhancement plan. Not only did this plan increase the number of buses and bus routes available during the construction phase, but it was also responsible for the development of a monitoring plan designed specifically to track the effectiveness of these new services. In the end the numbers speak of the plan's success: a final tally showed that 22,915 new riders were using buses at project completion. These transit services were so popular with the riding public that they remain in existence today.

Attempts to reduce the nearly 300,000 cars that used the interchange daily also took the form of community/employer-based incentives. In order to encourage motorists to use public transportation, carpooling, and park/ride services, the NJ Transit Vanpool financial incentive was doubled and public transportation partnerships were established.



2001 NPHQ Achievement Award

Routes 4 & 17 Interchange Reconstruction Project

In the end, it may be that small details of the roadwork itself best reflect unwavering customer focus and an acceptance of the fact that the project would work around the commuter, rather than vice-versa. Even during phases of heaviest construction, the every day driver found that all access to adjacent property was maintained, 24-hour towing and rapid response was in place on site, and travel lanes were kept open during peak commuter hours. Even the needs of the holiday commuter into and out of town were catered to: travel lanes were kept open at all times from Thanksgiving to New Year's Day. The extent of lane restrictions was a direct response to the needs of the major shopping centers in the immediate interchange area. In an area where 19 major malls exist, this was vital to both the businesses and the commuters.

Written and voiced responses indicate a rare public response to such a potentially disruptive project: nearly unwavering support throughout. "In my 25 years with the FHWA, I have never seen a project of this magnitude so enthusiastically supported by the public during a major reconstruction," wrote Dennis L. Meridia, U.S. Department of Transportation Division Administrator in an October 25, 1999, memo to James Weinstein, Commissioner of the NJDOT. Steps taken in the Action Plan to prevent surprises and promote awareness and education practically guaranteed customer satisfaction with the project.

Teamwork

2001 NPHQ Achievement Award

Routes 4 & 17 Interchange Reconstruction Project

"I invite you to join me"

Extracted from a memo sent by former New Jersey Transportation Commissioner John J. Haley, Jr., the above statement exemplifies the teamwork evident in the Routes 4 & 17 Interchange Reconstruction Project. Haley's invitation went to legislative and congressional branches of government, chambers of 0commerce, the FHWA, transportation agencies, county and local police departments, and local businesses. It was sent during the creation of the project's external task force, an element that was deemed necessary to complement the skills of the already large team (NJDOT, NJ Transit, FHWA, designer and contractor) working to tackle a project embedded into the community in so many ways. Haley's invitation and the subsequent establishment of the task force itself symbolize the general philosophy of the project, which stressed a team-like coordination of diverse skills.

With its primary goals of minimizing construction impacts, information dissemination, listening to the concerns of those involved and offering feedback on the construction process, the task force was kicked off on August 18, 1998. Chairpersons were elected to lead what were designated the project's three areas of priority: Communications and Public Outreach, Traffic Operations, and Enhanced Transit Services. It was clarified early on that this organized compilation of expertise and smaller goals was with the sole intent of carrying out an overall mission statement created by the group: "While construction is ongoing, our mission is to show the Public that we are a 'Government that cares.'"

In order to maintain task force coordination, NJDOT held regular general and sub-committee meetings. During these meetings, chairpersons gave routine updates and progress reports on their respective committees; each group was kept informed of the progress of the others. Promoting additional team coherence were periodic fax updates on changes such as traffic alerts, meeting minutes, and overall task force progress.

Also critical to this project was the existence of various partnering sessions among representatives of NJDOT, the contractor, the design group, FHWA and the task force. These discussions offered a chance for inter-group brainstorming; the general crossover of different ideas stemming from different elements of the team. Again, the result was an increased cohesiveness between players that would undoubtedly be responsible for the project's success along an accelerated path.

The coordination of internal and external players on the Routes 4 & 17 team is both impressive and indicative of a group with a team philosophy. Those involved were aware that progress occurs most rapidly with the combination of separate and diverse skills. From the NJDOT to local cable TV stations to the small area business, each was invited to contribute their expertise.

Innovation and Value

2001 NPHQ

Achievement Award

"Gazebo atop 4-17 site piques drivers' curiosity"

Routes 4 & 17

Interchange

Reconstruction

Project

The Routes 4 &17 project displayed innovation down to the smallest detail. This headline from The Record refers to the attractive and unusual on-site office/work space that contractor Joseph Sanzari of Bishop-Sanzari-Fletcher Creamer, Inc., erected for himself and his crew in the center of the construction site. Besides acting as a daily meeting place for construction officials, it also offered a friendly welcome to those commuters traveling through the construction area each day. According to the article, "The gazebo has generated so much interest that Sanzari said we will probably auction it off and donate the proceeds..."

In addition to those achievements reflecting quality process and results, customer focus and teamwork, this project also achieved engineering and construction firsts. The most significant of these, of course, was the complete replacement of a cloverleaf interchange in 14 months, accomplished while maintaining traffic flow for 285,000 motorists. The flyovers themselves, even though not built on new alignments, have proven extremely well designed for the maintenance of traffic flow, with clearly visible and smooth travel lanes. Construction innovations include the use of "Texas Barrier Railings" during creation of the flyovers, and scheduling ingenuity as evidenced by the temporary lifting of the "Blue Laws" that prohibit construction work on Sundays.

Value Engineering was a key part of accelerating this project. Cost Savings totaled $6.28 million achieved by implementing a realignment of the flyovers and the use of steel sheet pile in lieu of cast-in-place concrete. Flyover ramps were placed and designed to minimize the purchase of Right-of-Way that cost $1 million per acre. The creation of the Sprout Brook Structure, which spans the 10 lanes and shoulders of Route 4 eastbound and westbound, was changed from conventional excavation and cast-in-place abutments to driven tie-back sheeting abutment walls. This alternate method of construction was a first for a structure of this size and for a roadway this critical carrying a significant volume of traffic.

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Routes 4 & 17 Interchange Reconstruction Project

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Another innovative achievement carried out by the Routes 4 & 17 Reconstruction task force and the "first of its kind" in New Jersey was the introduction of a series of enhanced transit services funded with highway dollars, rather than transit dollars. Since the November, 1999, completion of the project, ridership on those NJ Transit bus lines on which service was increased has continued to grow steadily. Likewise, ridership in the Bergen County area has also increased since the inception of 4 & 17 bus service enhancements. The numbers from Paramus are most indicative of this: approximately 1,400 new passengers on weekdays; 2,500 new passengers on Saturdays; and 400 new passengers on Sundays. Finally, NJ Transit accrued $731,837 in bus operating revenue due to service enhancements from December 1998 to December 1999.

The latest calculations indicate that NJ Transit only billed the New Jersey Department of Transportation/Federal Highway Administration $1.2 million for bus operations and promotional activities from the original $4.4 million NJDOT/FHWA funding commitment. This is 27% of the base committed funding. As a result, NJ Transit has decided to retain many of the bus service enhancements beyond the construction period. Innovative aspects of the Routes 4 & 17 Project not only filled in necessary gaps caused during construction, but the savings accrued also improved bus service for residents and communities of Bergen County afterwards.

The 4 & 17 Bus Service Enhancement Program has become a model of success for future projects like NJDOT's multi-year I-80 construction project, that is now underway. Building on the success of the 4&17 project and the positive results achieved from this innovative program, New Jersey Transit was able to use the 4 & 17 service as a base and build upon it for the I-80 plan.

Indeed, one of the most noteworthy achievements was the formation of the 4 & 17 special task force that included elected officials, business and community leaders. They were instrumental in distributing information, providing advice on project staging and other features that directly impacted Bergen County communities. The result was minimal disruption to businesses and communities while providing intense positive public feedback on the job. The general public truly saw that the team cared and was responsive to their needs.

The provision of a second incentive bonus, in the amount of $3.5 million, to further accelerate the construction for an earlier completion was an unprecedented innovation that delivered added value to the project. The early completion resulted in substantial road user cost savings and added economic benefits to the businesses within the region.

2001 NPHQ

Routes 4 & 17 Interchange Reconstruction Project

Achievement Award

"An 'experimental basis'"

This is how NJDOT Deputy Commissioner Albert B. Ari characterized certain Routes 4 & 17 Project funding methods in his letter requesting the $3.5 million incentive/ disincentive clause from the Federal government. With the project unfinished, Ari's characterization was valid. However, upon completion it was clear that the implementation of a number of these well planned experimental techniques, such as the compilation of Federal funds to allow "advanced construction," would be instrumental to the project's success. Many of these "experimental innovations" have now been adopted on other construction projects and have thus set the stage for long-term improvement within the construction field. The human and economic density surrounding the 4 & 17 cloverleaf, its key position as an urban interchange, traffic conditions plaguing it before reconstruction, and the challenges of the project in general created the perfect proving ground to validate the techniques of any team that could conquer it. Some of the Routes 4 & 17 programs have now been adopted by other projects.

First and foremost, the formation of the Routes 4 & 17 Interchange task force has served as a role model for future projects requiring traffic mitigation. The success of this well-coordinated team, the efforts it put forth and the project highlights that resulted from it are already being considered for future construction projects, specifically those requiring traffic mitigation and innovative, less traditional techniques to ease traffic congestion during construction. Likewise, the implementation of partnering sessions was such a successful measure for communication and cohesiveness that similar discussions continue to occur in other projects. Again, like any element integral to achieving the difficult mission set by the task force, the value of these brainstorming sessions is now clear to outsiders.

Next, the success of the Routes 4 & 17 Interchange Reconstruction Project has served to verify that an important aspect of any similar traffic mitigation project is the availability of a multitude of services to affected customers. In September 1998, well before project completion, NJ Transit Executive Director Shirley DeLibero demonstrated a vision for the future when discussing the project's transit enhancement plan, then in its earliest stages. In a September 19, 1998, article from The Record, she states, "Our goal is to get people who drive to at least try transit, and it's something we hope we can continue past the construction period." As previously mentioned ridership increases indicate, that goal was clearly met, along with the a continual emphasis on satisfying the needs of the commuter whose daily pattern is upset by heavy construction.

2001 NPHQ

Routes 4 & 17 Interchange Reconstruction Project

Achievement Award

"This has to seem like a miracle."

Upon completion of the Routes 4 & 17 Reconstruction Project, James W. Hughes, Dean of the Edward J. Bloustein School of Planning and Public Policy at Rutgers University, offered his perspective. In a September 12, 1999, article in The New York Times, he said "...in an era of infrastructure gridlock...We have a situation where suburban sprawl has led to suburban crawl. And as a result, for the motorists who have to commute that route everyday, this [interchange reconstruction] has to seem like a miracle."

Bloustein's comment is a stark contrast to one made by Congresswoman Marge Roukema two years earlier. In a March 6, 1997, statement, she stressed that the Routes 4 & 17 interchange "currently operates in a state of failure." In addition to prohibiting the area's economic growth, the cloverleaf was causing injury in 25% of the near 300 accidents that occurred on it yearly. Such safety records meant that the New Jersey Department of Transportation's plan to reconstruct the interchange had monumental potential: successful overhaul could mean a boost in the quality of life on many levels, from the area as a whole down to the safety of the individual commuter. Bloustein's statement reflects the full fruition of that potential.

Yet, each of the reasons for the project's great potential for improvement—the interchange's position as a commercial and transportation hub, surrounding population density and the original cloverleaf's outdated engineering—was also intrinsic to the project's complexity. These conditions of nearly unmatched severity meant that success could only be the result of unmatched innovation and risk taking. Such a strategy was verified when NJDOT completed the project in half the estimated time, and with unprecedented public support during all phases of construction. As has been demonstrated, this achievement was based on a collaborative effort, strong public support and groundbreaking funding strategies. In short, it was a well planned yet bold innovative solution.

Press Release

The Routes 4 and 17 Interchange Reconstruction Project: Standards Set

Begun in 1998 and completed 17 months ahead of schedule during Thanksgiving week of 1999, the Routes 4 and 17 Interchange Reconstruction Project was one of the most successful transportation projects ever undertaken by the New Jersey Department of Transportation (NJ DOT).

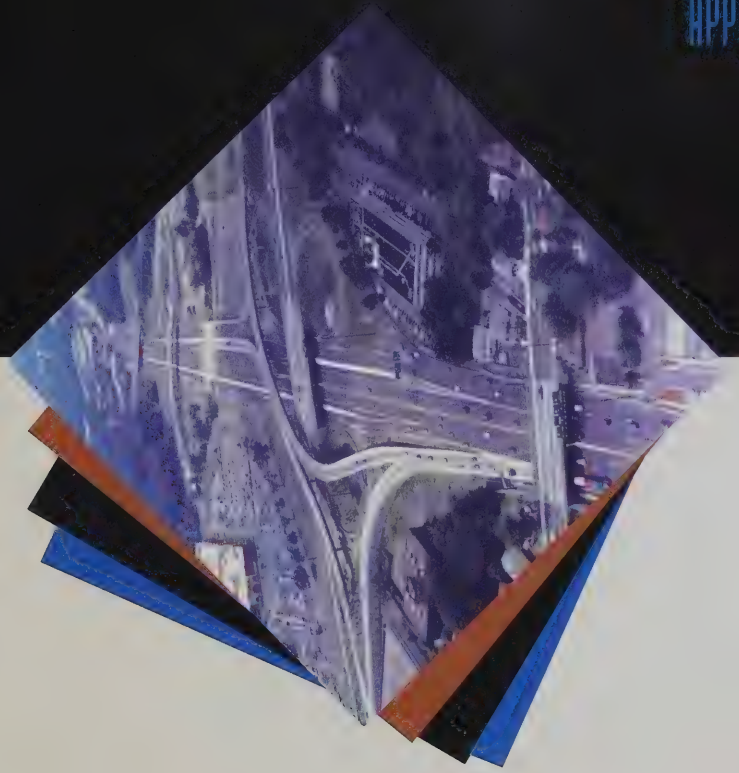
The $120 million overhaul of the 67-year-old antiquated interchange involved a complete replacement of the old cloverleaf interchange while maintaining traffic flow for the 285,000 motorists who use it every day. New Jersey has one of the highest volumes of bridge and highway usage in the nation, and maintenance of traffic during a major reconstruction project is a critical element in delivering a quality project on time, and with fewest impacts. The project involved construction of tri-level flyovers, a secondary interchange, as well as new ramps and travel lanes in the busiest commercial/ retail area and most densely populated region of the state.

Project complexity extended far beyond the construction zone. As the "crossroads" of a region with a 500,000-person employment base and major shopping malls, interchange conditions directly affected area motorists, businesses and residents. Surrounding quality of life depended on safely and smoothly moving traffic, reducing traffic and maintaining access to local property.

Delivering a quality project of this size and complexity required a multidisciplinary team effort. In order to succeed, the NJ DOT relied upon the coordinated skills of many different groups and individuals. Organized communication in the form of a project task force and group partnerships ensured innovative thinking throughout the entire project, and success of this effort was realized upon completion of the reconstruction: the interchange was open to motorists 14 months ahead of schedule and with minimal impact on drivers. These are feats few large public works projects have ever attained.

The accolades received have been many and varied, covering topics from the quality of the finished product to the availability of information and services during construction to the speed with which the contractors worked. The Routes 4 and 17 Interchange Project will be the subject of an upcoming documentary on the A&E Channel. Clearly, with quality and innovation as the benchmarks for all facets of this complex project, its success can serve as an example of what can be done on any large transportation project.

APPENDICES



PARSONS BRINCKERHOFF

THE CONSTRUCTION WEEKLY

ENR
Engineering News-Record
1874 125th ANNIVERSARY 1999

▶ **CLEAN AIR:** Concerns grow over rising emissions as older coal-fired powerplants respond to growing power generation demands

▶ **FOUNDATIONS:** Boston Central Artery rushes to finish caissons for floatout of large tunnel tubes

$6 A Publication of The McGraw-Hill Companies OCTOBER 25, 1999

SCHEDULEBUSTERS BREAK BOTTLENECK

Internet: www.enr.com

NEW JERSEY ROUTES 4 & 17 INTERCHANGE

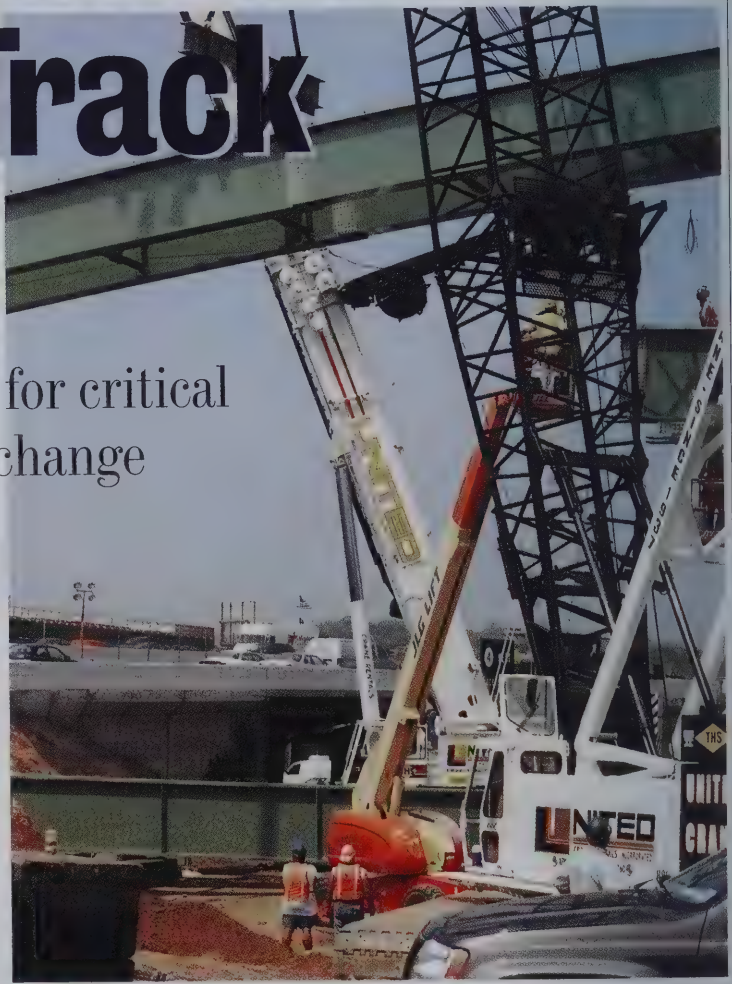
Reprinted from Engineering News-Record

October 25, 1999

PB 100 YEARS

Incentives Drive Fast Track

Joint venture bets on beating Nov. 23 deadline for critical New Jersey interchange



BIG LIFT Joint venture contractors have millions at stake for superfast completion.

As the petals of the classic cloverleaf started unfurling in rural Paramus, N.J., in 1931, *Engineering News-Record* heralded the development as a milestone in highway engineering. But 70 years of area development ultimately pushed that design to carry 280,000 vehicles a day. The $120-million federally funded solution is an ultra-fast-track project that shrinks the initial 4.5-year schedule for the $50 million of actual construction to about one year while keeping traffic moving and stores open.

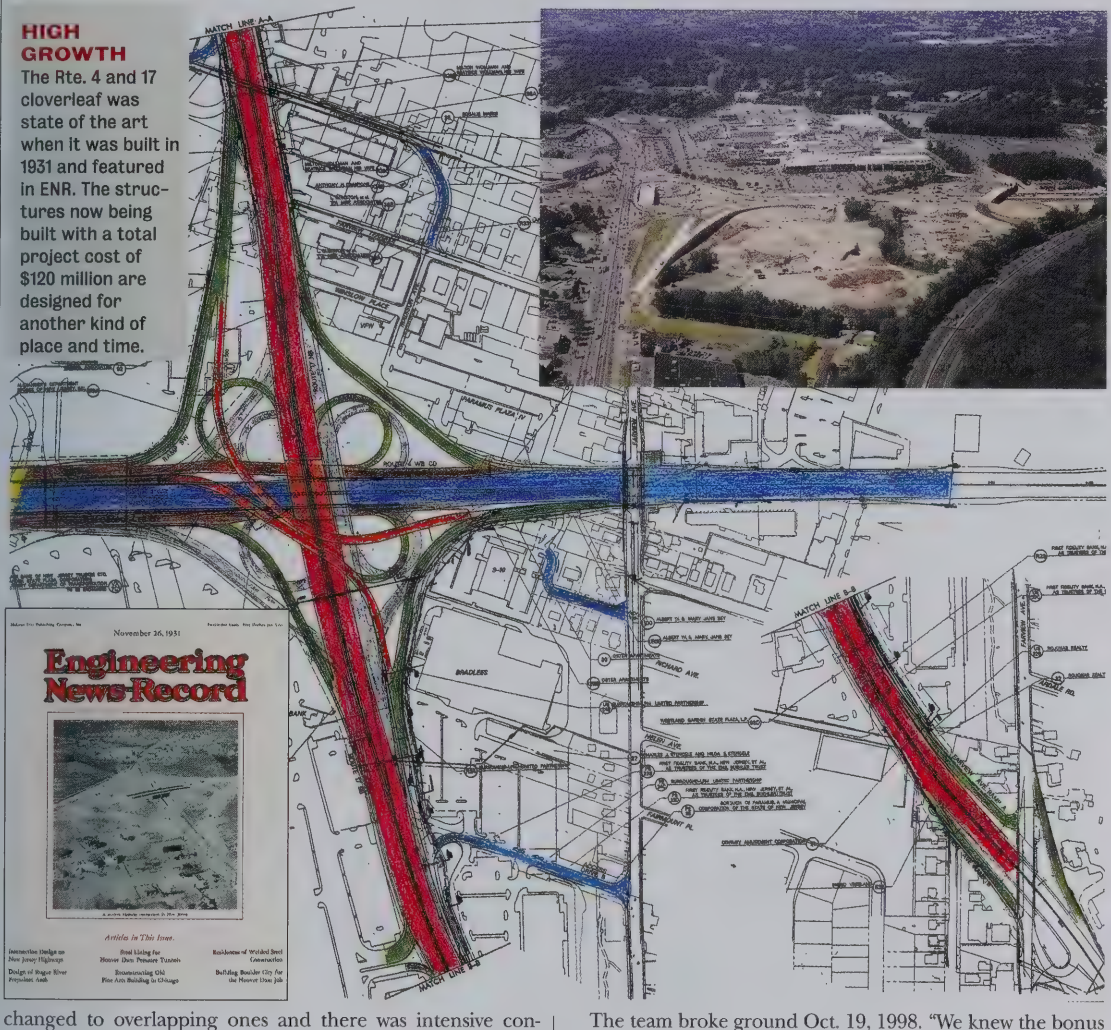
The traffic bottleneck and the construction challenge are complicated by Paramus' fame as the mall-crawl capital of the U.S. Five major shopping malls sit almost within a stone's throw of the intersection of State Highway Routes 17 and 4 and a multitude of individual stores and strip malls eat up all other available space on both routes for miles around. The two arteries are major connectors to State Routes 208 and 46, Interstate 287 and I-80, as well as the New Jersey Turnpike, Garden State Parkway and bridge and tunnel access to New York City.

Over the past year, the wilted cloverleaf has given way to a three-level interchange with twin fly-over ramps designed by Parsons Brinkerhoff, New York City. There also is an auxiliary interchange to the west to draw local traffic away from the main interchange. The project also includes the widening of Rte. 17 and construction of several service roads. Bids were opened Sept. 10, 1998, with the lowest of $49.7 million submitted by the joint venture of Joseph M. Sanzari Inc., North Bergen, N.J., Gardner M. Bishop, White Plains, N.Y., and Fletcher Creamer & Sons Inc., Hackensack, N.J. The other five bids ranged to $72.6 million.

By bid opening, the New Jersey Dept. of Transportation already had shortened its initial, tentative 4.5-year contract schedule to 30 months. Sequential construction activities were

PHOTO COURTESY OF BISHOP-SANZARI-CREAMER

HIGH GROWTH
The Rte. 4 and 17 cloverleaf was state of the art when it was built in 1931 and featured in ENR. The structures now being built with a total project cost of $120 million are designed for another kind of place and time.



changed to overlapping ones and there was intensive constructibility review, says DOT project manager William Carter, based in Trenton. The state then added a $3.5-million bonus if the contractor could knock off the job by Sept. 23, 2000, instead of April 30, 2001, saving the holiday shopping season for retailers, shoppers and motorists.

The pro-rated bonus was divided into two parts. For every day the team finished after Nov. 23, 2000, they would receive $9,000, not to exceed $1.4 million. For every day early up to Nov. 23 they would receive $35,000 as well as a one-time lump-sum payment of $1.4 million because of the greater economic benefit to the community. If the job was completed by Sept. 23, they would receive the full $3.5 million. "I'm willing to bang the guys $22,000 a day [if they're late] so I should be able to reward them [if they finish early]," says Carter.

"We bid the job at cost" and were going for the bonus, says Joseph M. Sanzari, JMS president and project manager for the joint venture. "We were confident we would make the bonus."

The team broke ground Oct. 19, 1998. "We knew the bonus was made four months into the job," says Sanzari. But the super-schedule posed the problem of having to scale back activity to match the completion date and compensation while 280,000 motorists a day watched and waited. "We would have had to cut back to a skeleton crew," says Sanzari. So the venture asked the state for another incentive to finish even earlier.

"They said, 'We can finish another year earlier if you want to pay,'" says Carter. The contractors suggested May 2000, but Carter was more interested in beating the Christmas shopping season in 1999. For another $3.5-million incentive, the team now must be substantially completed by Nov. 23, 1999, which the contractor says will happen. Not included is one flyover that had a fixed steel delivery. It has to be done by Christmas Eve. After Dec. 24, the package shifts to a "disincentive" of $44,000 a day, eradicating the incentive if work is not done by Jan. 25.

In large and small ways, the project has the look of a military operation to meet those deadlines, while allowing traffic

MAP COURTESY OF PARSONS BRINKERHOFF; PHOTO COURTESY OF BISHOP-SANZARI CREAMER

TIME IS MONEY Creamer (left) and Sanzari stick to schedule.

to flow through the site relatively unimpeded. The all-union craft force of 80 to 100 people works shifts of six 10-hour days, with night work scheduled periodically to pour columns, lift steel or shift traffic patterns. Crews are rotated on night work so they don't get overly fatigued. "We won't sacrifice safety for schedule," says J. Fletcher Creamer Jr., president of Creamer.

Most of the craftworkers are permanent employees of the joint-venture firms. Creamer and Sanzari have worked together on jobs for 15 years. Sanzari and Bishop almost always work together as a venture, with Bishop handling office administration and Sanzari field operations.

Time is squeezed from everything. Trucks and equipment are lined up neatly in rows after being used. A driver or operator may complain that it takes an extra five minutes, but "the fuel man and mechanic can go right down the line" and save four hours of chasing equipment down and not miss any pieces for maintenance, says Sanzari.

Value engineering played a big part in snipping the schedule. Parsons Brinkerhoff had proposed that the foundation of an ancillary bridge crossing Sprout Brook on Rt. 4 be supported by as many as 860 steel piles. It is a short span, only 48 ft, but the abutment is very large, 209 ft, because of the 13 lanes of traffic. The contractor proposed substituting sheet pile for the steel piles to save time, reduce lane change phases from six to two and keep lane elevations substantially the same for traffic management. The change also would eliminate much of the pile driving vibration near stores and mitigate the physical damage in an environmentally sensitive area.

"We didn't feel comfortable" with all of the piling originally proposed, but the state generally only allows sheet piling for temporary structures, says Richard Szatkowski, senior structural engineer for Parsons Brinkerhoff in Princeton, N.J. The main concern is durability and rigidity, he says.

"It is a little atypical" for NJDOT and was rejected at first, says Carter. "The main concern was rusting over time of the sheeting." The state generally looks for a service life of 75 years and NJDOT specified the next size thicker sheeting after calculating for corrosion. Approval came after both sides sat face-to-face and hashed out the concerns and advantages. The structure was designed for the contractors by engineer A.G. Lichtenstein & Associates Associates, Paramus, which has done value engineering for Sanzari in the past.

The change saved 10 weeks in the structure and produced net savings of $280,000, which was split evenly between the state and contractors, says Warren Vincentz, NJDOT resident engineer. "Typically, we look for the same quality and durability" in such situations, says Carter. If it is equivalent, faster and cheaper, then "it is a win-win situation," he adds. "Money savings are nice, but they are second to quality."

The sheet piling serves as cofferdam, scour protection and support for the bridge and probably saved two to four weeks of pile-driving says PB Vice President Richard Fischer, the firm's project manger. "On this job, every day is critical," he says.

The schedule was launched by getting the steel orders to High Steel Structures, Lancaster, Pa., as quickly as possible. "We gave them the contract without a signed contract with the state and told them to build it according to the plans," says Sanzari, who says he usually does a lot of field measuring. Instead, the intensive measuring and surveying came later when the contractors were building the piers. "There are no tolerances on the curved beams," he says. "If the pier cap is off by one-half inch, it could throw the curved section off by 3 or 4 inches." So far, everything has fit like a glove, he says. "We knew it was going to be tight," says a spokesman for High Steel.

The southeast and northwest flyover ramps with integral pier caps posed a challenge to the schedule. The steel members are embedded in the cap to reduce the overall height of the structure and retain the 15-ft, 9-in. clearance underneath that the state required. The contractors erected temporary steel towers to support the structural steel while the cap was poured around it. Reinforcing bar was passed through the steel web so that it became one with the pier.

NEW GROUND Contractors suggested using sheet piles instead of 860 piles and saved time.

PHOTO TOP BY WILLIAM G. KRIZAN FOR ENR; BOTTOM COURTESY OF BISHOP-SANZARI-CREAMER

TIGHT QUARTERS Traffic flow in work zones (above) and clearance under integrated pier cap (right) posed challenges.

The southeast bridge has two expansion joints at the pier, but the northwest is fixed. Expansion of the 66-in.-deep steel there extends outward from the pier cap to the adjacent piers where the steel sits on regular pot bearings, says Szatkowski. There is "a lot of reinforcing" in the fixed-pier cap and the "eccentricity [of the steel girders] has quite an effect" on the loading, he adds.

PB tried to balance the loading caused by the long structure and vertical and horizontal curves by offsetting one of the columns with respect to the cap in the ramps. The designers also increased the size of the outer steel girders to carry the disproportionate load. The flange plates "vary in thickness and width," says Szatkowski.

Integral piers are rare in New Jersey, but there are some, mostly on skewed bridge structures using steel box girders instead of concrete, says Szatkowski. "We did look at steel, but concrete worked out better," he says.

The steel box girders "are fracture critical" and could cause total failure of the structure if they deteriorate, says Edwin Skrobacz, lead structural engineer for PB in Princeton. "Maintenance is always a concern and inspection is always a problem," he adds.

The integral pier caps save money despite the complexity says PB's Fischer. If the steel was placed on top of the piers in the customary fashion, the whole structure would have to be five feet higher. "The higher the pier caps and columns, the higher the cost," he says.

Another technique used to speed the schedule was the rubblization of the existing worn-out concrete roadway on Rt. 4 to provide new base material for the roadway. This is one of the first such projects for NJDOT, says Fischer. "Typically, you have to cut open the joints and repair them, which takes a long time," he says. In rubblization, you "fracture the pavement into coarse aggregate," eliminating concerns about deteriorated joints and displaced slabs, he adds. Bituminous overlay then is placed directly on it.

If anything, traffic has been moving through the interchange more smoothly than before the job started. Volume is down about 15 to 20% as motorists try to find other routes through the area. "There are other games in town, but they are mostly sold out," says Carter. Even so, the state estimates the project impact costs on motorists at $100,000 a day. A Website, toll-free phone number and multitude of variable message signs keep drivers posted.

GOOD VIEW Gazebo is command center.

Perhaps the most unusual thing that passing motorists have seen is the gazebo perched on one of the center ramps. Sanzari says he wanted to build a tower to keep an eye on things, but settled on a gazebo.

Early commuters could see foremen meeting there at 5 a.m. to plan the day's work, followed by superintendents at 6 a.m., and then the inspectors, says Sanzari. Along with a good view, "it has a light, fan and refrigerator," he notes. The gazebo will be raffled off to raise money for Hackensack University Medical Center.

Public reaction has been great. "I have never seen a project where people driving by give thumbs-up and say 'nice job,'" says Steve Boswell, president of Boswell Engineering, Hackensack, part of a joint venture consulting team hired by NJDOT for inspection and traffic management duties. "Usually they say two words and it is not 'nice job.'" ❑

By William G. Krizan in Paramus, N.J.

PHOTO TOP LEFT COURTESY OF BISHOP-SANZARI CREAMER; PHOTO RIGHT AND BOTTOM BY WILLIAM G. KRIZAN FOR ENR

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PB PARSONS BRINCKERHOFF
100 YEARS

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

New Jersey Division Office
840 Bear Tavern Road, Suite 310
West Trenton, New Jersey 08628-1019

October 25,1999

IN REPLY REFER TO:
HDA-NJ

Mr. James Weinstein
Commissioner
New Jersey Department of Transportation
P. O. Box 601
Trenton, New Jersey 08625

Dear Jim:

It is with great pleasure that I write this letter concerning the Department's nomination for the Public Service Excellence Awards for the Route 4/17 Interchange Reconstruction Project in Paramus, New Jersey.

This interchange is located in one of the most highly congested areas in New Jersey. The interchange carries approximately 250,000 vehicles per day in both local and through traffic. It caters to numerous bus routes carrying nearly 20,000 passengers a day. The interchange also provides access to one of the largest retail and commercial areas in the State.

It was clear that a project of this magnitude ($120 million) could only be accomplished with a concerted effort to bring all levels of government together and to look at innovations to avoid the potential for serious adverse impacts to the local economy during the reconstruction process. With your leadership and the Department's commitment, this project is an incredible success. In my 25 years with the Federal Highway Administration (FHWA) I have never seen a project of this magnitude so enthusiastically supported by the public during a major reconstruction.

A bit of history. The project, as originally considered using standard construction practices, would have taken approximately four years to build. Everyone quickly realized that this would be totally unacceptable, particularly the public and local merchants. The Department initiated a "quality audit" team review of the project concept to see what could be done to significantly reduce construction time while proposing innovative ways to move all traffic, including transit buses, during construction. The result was an innovative contract with a proposed construction time of about 2.5 years. It also contained an incentive/disincentive clause to encourage further innovation and time savings. The review also proposed an innovative program to fund enhanced transit service during the reconstruction phase and a significant public information program. The FHWA was pleased to be an active participant in all of these efforts.

But, the Department didn't stop with the original plans and contract. During construction, the Department worked with the contractor to further reduce construction duration. These efforts resulted in a "first" for the FHWA program. It was an innovative incentive/disincentive clause

developed under FHWA's "special experimental projects" program. This innovation provided the contractor with a significant financial incentive to complete the project prior to the next major holiday shopping season. This earlier completion results in a project that was reduced from four years of construction to less than two years while maintaining complete access to motorists and providing enhanced transit service! A tremendous feat that could have only been accomplished with the complete cooperation of many governmental entities, including Paramus, Bergen County, New Jersey Transit, New Jersey Highway Authority, the North Jersey Transportation Planning Authority and all of the resource agencies that had to review and approve the plans for this project.

I just wanted to highlight for the judges some of the innovative features used on this project. They include:

1. Use of two $3.5 million incentive/disincentive clauses in the contract to encourage early completion.
2. A web page to inform motorists and businesses of current traffic information and, more importantly, alternative route suggestions.
3. An "800" number for questions and customer feedback.
4. A large media campaign via radio, local cable and numerous periodicals.
5. Increased funding to provide enhanced transit service through New Jersey Transit by adding more buses and more routes during the project. We anticipate that many of these new riders will continue using transit after construction is completed.
6. Developed a monitoring plan to track the effectiveness of these transit initiatives.
7. Established a strategy for deploying and placing numerous variable message signs within the project corridor and on alternative routes to provide real time traffic information.
8. Developed a task force with local law enforcement, fire departments, public officials at all levels, local businesses and other transportation authorities to respond to all issues as they arise.
9. A comprehensive funding package that tied together Federal funds from a variety of sources and used "advanced construction" funding to initiate the project before all funding was completely available. This advanced construction approach permitted the project to be started approximately one year earlier than the traditional funding approach.

The FHWA was pleased to be part of this incredible project. It has clearly demonstrated that when government unites on a common goal, that virtually anything is possible. You and your entire staff are to be congratulated on an outstanding project. We are pleased to add our endorsement to your nomination for the Public Service Excellence Awards. The sense of camaraderie shown on this project from all levels of government has been very special. Congratulations on a super job!

Sincerely yours,

Dennis L. Merida, P.E.
Division Administrator

NJDOT
NEWS

"Deliver a safe, reliable and affordable transportation system that is considered to be the best - every day and in every way - by those who live, work, play and invest in New Jersey."
Transportation Mission Statement

For Immediate Release
August 18, 1998

Contact: John Dourgarian
Phone: (609) 530-2124

Haley announces Special Task Force for the Route 4 and 17 Interchange reconstruction

Transportation Commissioner John J. Haley, Jr. today announced the formation of a Special Task Force for the Route 4 and 17 interchange reconstruction planned for this fall.

"This interchange desperately needs improvements and the NJDOT is committed to making them happen," the Commissioner said. "The Task Force will help us shape and implement a public outreach and traffic mitigation effort, and can serve as a clearinghouse of ideas to make things better while this project is under construction."

The Task Force includes area state and federal legislators, Bergen County government representatives, local officials, State and County police, NJDOT, and area businesses, and will serve as a communications conduit between NJDOT and interested parties for the project. The Task Force will meet regularly and will address issues that arise throughout the duration of work.

"Route 4 and 17 serves as the crossroad for a county with an employment base of 550,000 people and 19 major malls and shopping centers," the Commissioner said. "It is incumbent that we do everything we can to minimize disruptions and complete the work as quickly as possible. We have advanced the schedule for the project by nearly one year and have added $3.5 million in incentives to the contractor to complete the project before Thanksgiving of 2000."

As part of the effort to minimize disruptions and keep commuters informed, no lane closures will be permitted from Thanksgiving to New Year's Day, and NJDOT will establish a web page for the project.

Attached is a list of Task Force members.

###

Bus and Rail Choices

NJ TRANSIT will offer travelers a menu of transportation alternatives during NJDOT's Routes 4 & 17 interchange construction project. NJ TRANSIT's existing and expanded bus routes servicing the Routes 4 & 17 corridor will offer commuters, shoppers and area residents convenient and reliable options while the project is under construction.

NJ TRANSIT invites you to try its bus or rail service, as well as those offered by the **SHORT LINE and RED & TAN** bus companies. We also encourage you to explore car and van pool options available through Meadowlink, the transportation management association in the Bergen County area.

NJ TRANSIT BUS SERVICE

No. 144: Fair Lawn - Hackensack - New York
Serving: Fair Lawn, Paramus, Maywood, Hackensack to New York City
Rail Connections: Bergen County Line Rail Stations: Fair Lawn - Radburn Station

No. 148: Midland Park - Fair Lawn - New York
Serving: Midland Park, Fair Lawn to New York City

No. 162: Maywood - New York**
Serving: Paramus, Maywood, Hackensack to New York City

No. 163: Ridgewood - New York**
Serving: Ridgewood, Paramus, Maywood, Hackensack, Hasbrouck Heights, Wood-Ridge, East Rutherford, Union City to New York City
Rail Connections: Bergen County & Main Line Rail Stations: Ridgewood Station

No. 164: Midland Park - New York
Serving: Midland Park, Ridgewood, Glen Rock, Fair Lawn, Paramus, Hackensack to New York City
Rail Connections: Bergen County Line Rail Stations: Glen Rock - Boro Hall Station, Ridgewood Station

No. 171: Paterson - New York (GW Bridge)**
Serving: Paterson, Fair Lawn, Paramus, Hackensack, Teaneck, Englewood, Fort Lee to New York City (GW Bridge)
Rail Connections: Bergen County Line Rail Stations: Fair Lawn to Radburn Station

No. 175: Ridgewood - New York (GW Bridge)
Serving: Ridgewood, Glen Rock, Fair Lawn, Paramus, Hackensack, Teaneck, Englewood, Fort Lee to New York City (GW Bridge)
Rail Connections: Bergen County Line Rail Stations: Glen Rock - Boro Hall Station; Pascack Valley Line Rail Stations: Hackensack - Anderson Street Station

No. 196: Warwick - New York
Serving: Warwick (NY), Greenwood Lake, West Milford, Ringwood to New York City

** Service will be enhanced significantly.
*** New service to begin January 1999.

NJ Bus and Rail Choices continued

No. 709: Bloomfield - Paramus**
Serving: Bloomfield, Clifton, Passaic, Garfield, Lodi, Hasbrouck Heights, Rochelle Park, Paramus
Rail Connections: Bergen County Line Rail Stations: Garfield Station

No. 756: Fort Lee - Paramus
Serving: Fort Lee, Englewood, Teaneck, North Hackensack, Paramus

No. 758: Passaic - Paramus Park**
Serving: Passaic, Garfield, Elmwood Park, Saddle Brook, Rochelle Park, Maywood, Paramus
Rail Connections: Bergen County Line Rail Stations: Plauderville Station

No. 770: Paterson - Hackensack**
Serving: Paterson, Fair Lawn, Elmwood Park, Paramus, Rochelle Park, Maywood, Hackensack
Rail Connections: Bergen County Line Rail Stations: Fair Lawn-Broadway Station; Pascack Valley Line Rail Stations: Hackensack-Anderson Street Station

No. 775: Paterson - Paramus* (New Century Road Service)**
Serving: Paterson, Fair Lawn, Paramus
Rail Connections: Bergen County Line Rail Stations: Fair Lawn-Broadway Station; Main Line: Paterson Station

NJ TRANSIT RAIL SERVICE

NJ TRANSIT Bergen County Rail Line
Serving: Mahwah, Ramsey, Allendale, Waldwick, Ho-Ho-Kus, Ridgewood, Glen Rock, Fair Lawn (Radburn & Broadway), Plauderville, Garfield, Rutherford, Secaucus & Hoboken
Bus Connections: 163/164/175 - Ridgewood; 164 - Glen Rock; 144/171/775 - Fair Lawn-Radburn; 770 - Fair Lawn-Broadway; 709 - Garfield; 758 - Plauderville

NJ TRANSIT Main Line
Serving: Mahwah, Ramsey, Allendale, Waldwick, Ho-Ho-Kus, Ridgewood, Glen Rock, Hawthorne, Paterson, Clifton, Passaic, Lyndhurst & Hoboken
Bus Connections: 163/164/175 - Ridgewood; 775 - Paterson

NJ TRANSIT Pascack Valley Line
Serving: Spring Valley, Nanuet & Pearl River (NY), Montvale, Park Ridge, Woodcliff Lake, Hillsdale, Westwood, Emerson, Oradell, River Edge, North Hackensack, Hackensack (Anderson Street), Teterboro, Wood-Ridge & Hoboken
Bus Connections: 175/770 - Hackensack-Anderson Street

PRIVATE BUS CARRIER SERVICE

SHORT LINE (Hudson Transit Lines)
Serving: Franklin Turnpike & NJ Route 17 in Suffern (NY), Ramsey, Allendale, Waldwick, Mahwah, Ho-Ho-Kus, Ridgewood, Ridgewood Park and Ride (on NJ Route 17), Paramus to New York City

RED & TAN LINES (Rockland Coaches)
Serving: #45 Ramapo Flyer, Montvale Service Area Park and Ride on the Garden State Parkway to New York City

COMMUTER GUIDE

ROUTES 4 & 17

Interchange Reconstruction

Governor Christine Todd Whitman
Commissioner John J. Haley Jr.
Chairman of the Board, NJ TRANSIT

NJ TRANSIT The Way To Go

New Jersey Department of Transportation

Funded by the Federal Highway Administration

The New Jersey Department of Transportation, with funding from the Federal Highway Administration, has worked to minimize the disruptions to the lives and livelihoods of those who live, work and travel in this area during the reconstruction of the Routes 4 and 17 Interchange. We have accelerated the schedule from three and a half to two and a half years and offered millions of dollars in incentives to the contractor to do even more.

In addition, working with NJ TRANSIT, the local communities and businesses, we will enhance our traffic safety operations, bus services and communications in the impacted area. In the construction area,

- the Routes 4 and 17 interchange will remain operational throughout construction;
- all access to adjacent properties will be maintained;
- a 24-hour towing and rapid incident management response will be in effect; and,
- no travel lanes will be closed from Thanksgiving to New Year's Day and weekdays during morning and evening rush hours.

Want more info?

www. njcommuter.com
for project updates, commuter info

1-877-NJROADS
for project updates, commuter info (in operation late fall)

Routes 4 & 17 Interchange Reconstruction

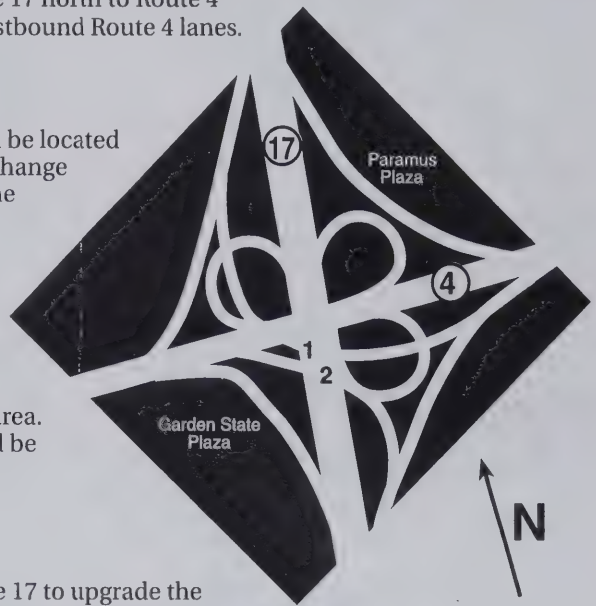
Beginning in January 1999, this interchange will be totally reconfigured. The project will cost $120 million, funded solely by the Federal Highway Administration, and will include these features:

FLYOVERS.

The two new flyover ramps will provide a total of three levels for traffic. The first will connect Route 17 south to Route 4 east (1) and the second will connect Route 17 north to Route 4 west (2). The existing loop ramp that connects Route 17 north to Route 4 west will be reconstructed to access the westbound Route 4 lanes.

AUXILIARY INTERCHANGE.

In addition, an auxiliary interchange will be located west (towards Fair Lawn) of the main interchange to draw traffic for local destinations from the main interchange.



SERVICE ROAD.

A service roadway along Route 4 west will be constructed similar to one that already exists in the eastbound direction to serve local traffic through the interchange area. To do this, the bridge over Sprout Brook will be widened.

OTHER IMPROVEMENTS.

This project also calls for widening Route 17 to upgrade the acceleration/deceleration ramps. Several access roads will be constructed to businesses and residences in the interchange area, Farview Terrace and Winslow Place will become dead ends from Route 17 and Prospect Street will be connected to Farview Terrace to replace this access.

About the Routes 4 & 17 interchange

Built in 1932 as a state-of-the-art cloverleaf, the Routes 4 and 17 interchange in Paramus, Bergen County is a main transportation connector for one of the most densely populated regions in the state. It offers access to Routes 208 and 46, I-287 and I-80, the Garden State Parkway, the New Jersey Turnpike and the George Washington Bridge — gateways to New York City, New England and the rest of New Jersey. The interchange also supports bus routes that regularly serve nearly 20,000 passengers.

Designed to carry 9,000 vehicles during rush hour, the interchange now carries more than 17,000 rush hour vehicles, making it one of the most congested in the state.

PUBLIC EMAIL RESPONSES TO ROUTE 4 & 17 INTERCHANGE PROJECT

Subj: Rtes 4 & 17 reconstruction
Date: 9/12/99 11:05:18 PM Eastern Daylight Time
From: <A HREF=mailto:Purple14>Purple14</A>
To: <A HREF="mailto:BRAVO417">BRAVO417</A>

BRAVO

I have never taken the time to write about a construction job but of course one has never been done so efficiently.....

Subj: WHAT A JOB !
Date: 5/30/99 10:29:51 PM Eastern Daylight Time
From: ladjbell@webtv.net (Lad Bell)
To: BRAVO417@aol.com

Let me start by saying "THANK YOU".
It is such a pleasure driving by that project and seeing how FAST it is taking shape.....

Subj: NYtimes
Date: 9/13/99 10:25:55 PM Eastern Daylight Time
From: landrianos@home.com (Louis Andrianos)
To: BRAVO417@aol.com

I read the article in the NYT about how well the project was going. Congratulations! It's always nice to hear good news.....
Louis Andrianos, NJ, Union County Resident

Subj: (no subject)
Date: 9/13/99 9:34:28 AM Eastern Daylight Time
From: <A HREF=mailto:MJBACHICH>MJBACHICH</A>
To: <A HREF=mailto:BRAVO417>BRAVO417</A>

Congratulations! Sanzari is the best! you've made our lives a lot easier than it otherwise could have been.....you're doing an OUTSTANDING job of managing this major transportation project!

I totally concur with the comments made in yesterday's NY Times article! Thank You! .....

From: PEANUTATTA@webtv.net [mailto:PEANUTATTA@webtv.net]
Sent: Tuesday, November 02, 1999 8:57 PM
To: webmaster@cpm.dot.state.nj.us
Subject: Rt. 4 & Rt. 17

Great website for N.J. Transportation Dept. Lived in Fair Lawn for 55 years and drove that 4 & 17 ramps many times. Glad to see that they finally improved it.
We moved to Florida 9 years ago and it is nice to see what is going on back home. I know that many people will be pleased with the new ramps etc. That sure was a busy intersection, especially at the rush hour. Keep the updated pictures coming it really is interesting.

AASHTO

2000 TEAM RECOGNITION AWARDS

Presented by
The Standing Committee
On Quality

Category: Other, Traffic Mitigation Special Task Force

Exemplary Partner

New Jersey Department of Transportation
4&17 Interchange Reconstruction Special Task Force
Meg Frampton (609) 530-2089

A construction project of this magnitude ($120 Million) could only be accomplished with a concerted effort to bring all levels of government together and to look at innovations to avoid the potential for serious adverse impacts to the local economy during the reconstruction process; therefore, the Department sought the assistance of a Special Task Force to help us shape and implement a public outreach and traffic mitigation effort, and to offer their expertise to serve as a "clearinghouse" of ideas to make things better while the 4 & 17 interchange project was under construction. The role of the Task Force was to: (a) keep construction impacts to a minimum, (b) disseminate information and "spread the word" about the construction, (c) meet with constituents and listen to their concerns, (d) make recommendations on possible alternate routes, expanding transit services, location of variable message boards to keep motorists informed, and (e) provide feedback on construction, schedules, and plans.

Consulting Engineers Council of New Jersey

29TH ANNUAL ENGINEERING EXCELLENCE AWARDS

Rutgers University

2000

Grand Honor Award

Parsons Brinckerhoff-FG, Inc.

Routes 4 and 17 Interchange Reconstruction

Client: New Jersey Department of Transportation

To relieve one of New Jersey's most congested interchanges, the New Jersey Department of Transportation called on parsons Brinckerhoff-FG, Inc. to provide design and engineering services during the construction of this important improvement project. Located in one of the nation's most densely developed retail shopping areas, the existing cloverleaf interchange at Route 4 and Route 17 in Paramus, New Jersey, was deficient for the volume of traffic it carried. The construction of two flyover ramps at the third level, an auxiliary interchange to provide a north/south U-turn move and shopping mall access, new service roads, and the widening of Route 4 and Route 17 accommodate traffic demands while improving safety and minimizing impacts to the surrounding area. Hailed as a success by state and local officials, the project was completed more than one year ahead of schedule.

From Sprawl to Crawl to Enthrall

Drivers Rejoice as a Bottleneck at Routes 4 and 17 Is Poised to Unclog Ahead of Time

By GEORGE JAMES

PARAMUS

When the cloverleaf interchange at Routes 4 and 17 here was built in 1932, it was considered a feat of engineering. In the decades since, it has become a symbol of urban sprawl as well as a source of congestion and colorful language.

Intended to handle 9,000 cars during rush hour, the interchange was overwhelmed by 17,000 vehicles at rush hour and a crush of 200,000 vehicles a day.

Rebuilding the interchange, one of the busiest in the country that sits amid numerous shopping centers, seemed a daunting task. When officials at the New Jersey Department of Transportation awarded a construction contract in late last September, they set a timetable of three years and crossed their fingers.

They also included a sweetener: a $3.5 million bonus for the contractor if the job was finished six months ahead of schedule. The way things look now, the $120 million job, financed solely by the Federal Highway Administration, is scheduled for completion by Christmas Eve — a year and a half early.

Moreover, a realigned ramp connecting Route 17 south with Route 4 west opened without fanfare in June. And on Sept. 20, the first major flyover ramp, a crucial link connecting Route 17 south to Route 4 east and the George Washington Bridge, is to open. The contractors also say the major realignment of Route 17 and overall construction should be completed by Thanksgiving, and the last flyover ramp — from Route 17 north to Route 4 west — is expected to be completed by Dec. 24.

Offering bonuses to contractors to speed up major projects where construction can cause traffic nightmares has been a common practice for years, said John Dourgarian, a spokesman for the New Jersey Department of Transportation. The department has about 200 construction projects, valued at $1.2 billion, going at any one time. Of these, about 2 percent involve bonuses, he said. But the $3.5 million offered to the consortium of three contractors — Joseph Sanzari of North Bergen, Fletcher Creamer of Hackensack and Bishop Construction of White Plains — was the largest incentive ever proposed in the state.

The results have astounded even the transportation officials who are more used to imposing penalties for late work than bonuses. And it has delighted motorists, who have also been charmed by a large wooden gazebo perched on a high ramp that has served not only as an on-site construction office but a cheerful symbol of the project.

That sense of delight was perhaps best enunciated by James W. Hughes, dean of the Edward J. Bloustein School of Planning and Public Policy at Rutgers University. "We are in an era of infrastructure gridlock," he said. "We have a situation where suburban sprawl has led to suburban crawl. And as a result, for the motorists who have to commute that route everyday, this has to seem like a miracle."

He added: "That it was not only done on time is an unusual achievement in and of itself. But to be done a year and a half ahead of time is nothing short of a gift from heaven."

Not exactly. It was more the doing of Mr. Sanzari, the lead contractor, who observers say has been pushing his workers like Gen. George Patton.

Work began ahead of schedule and went on 10 hours a day, 6 days a week, said Warren Vincentz, the Transportation Department's resident engineer on the project. Good weather in winter was also a major factor. When it became obvious the project was far ahead of schedule, transportation officials and Mr. Sanzari negotiated an additional $3.5 million bonus in July to speed up the job by paying for increased labor and supply costs.

"He took people from other jobs," Mr. Vincentz said. "He added more people to the crews. He brought in more crews. He expanded to 20 hour days, six days a week and at times seven."

The reaction from the public has been unprecedented, said Mr. Vincentz who has been with the Transportation Department for more than 30 years.

"There's an excitement to the job," Mr. Vincentz said. Drivers, local business people, even officials at his children's school and the pastor and organist at his church wax enthusiastic about the job. And, he said, "There's a certain excitement among the workers, the thrill of the job."

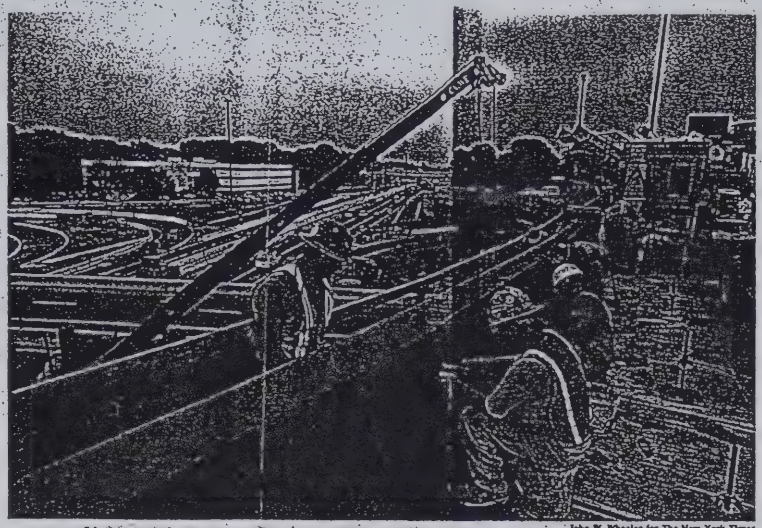
He has also received numerous E-mail messages on the project's web site, the first ever created for a New Jersey construction project: www.njcommuter.com.

Robert Vandeweghe, a filmmaker from Teaneck who has been making a documentary on the project, said he has also been impressed with the public response.

"I was here when they opened the first ramp," Mr. Vanderweghe said. "When they stopped the traffic down and they moved the cones and for the first time everyone was able to go on the ramp, everybody that came by, they were blowing their horns and sticking their thumbs up."

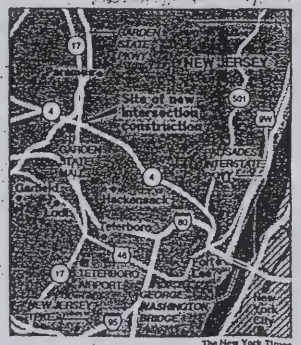
Mr. Vincentz said this job has been unusual in other ways: he doesn't recall a construction site ever having a gazebo.

Signs by the contractors and the unions are sprouting on ramps, thanking motorists for their patience. And there is one sign that says their "history-making gazebo" will be raffled off to benefit Hackensack University Medical Center.



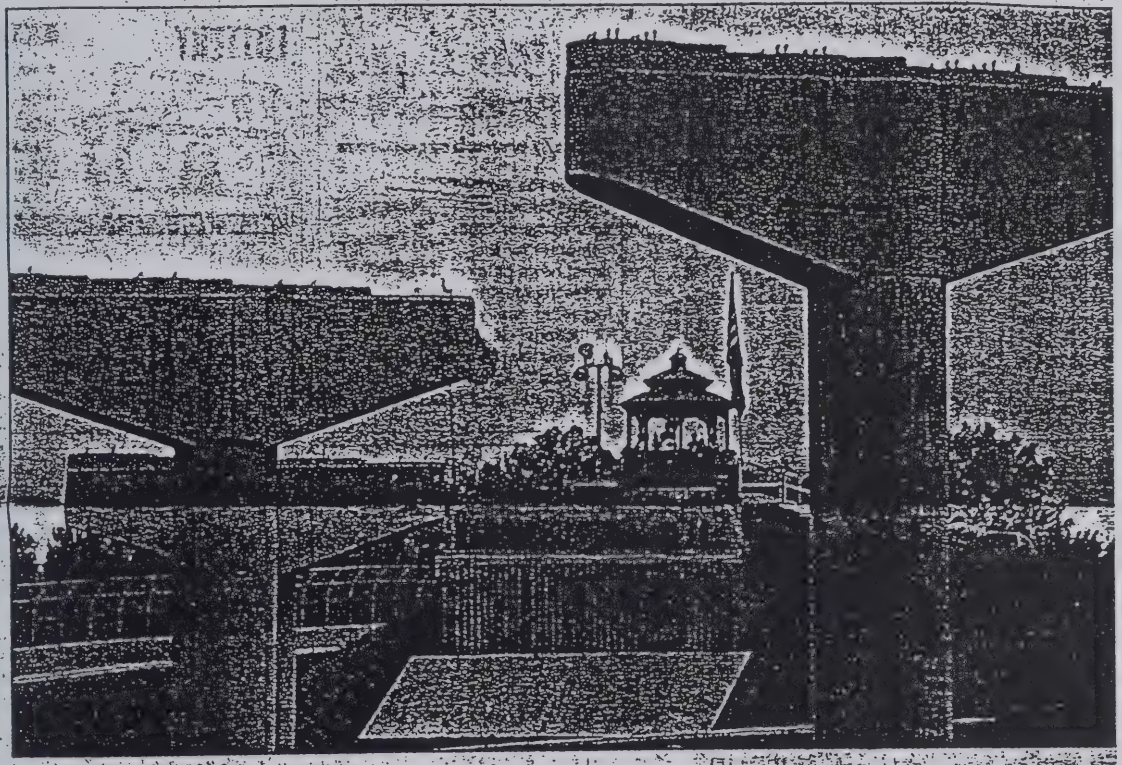
John W. Wheeler for The New York Times

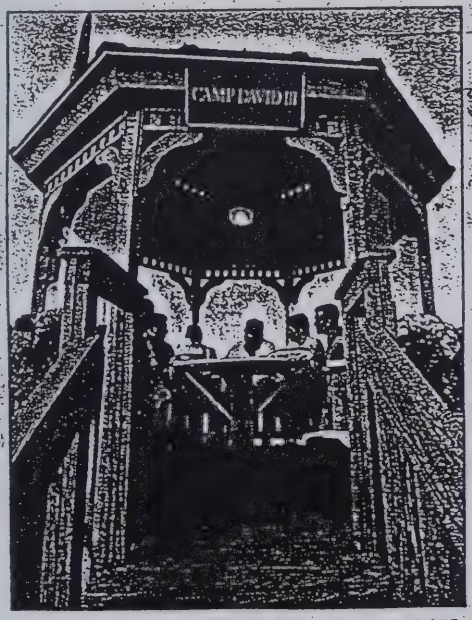
Crews work on a flyover connecting Routes 4 and 7. Their hard work has paid off — to the tune of $3.5 million — for the bosses.



The New York Times

ROOM WITH A VIEW





STAFF PHOTOS BY AL PAGLIONE

The gazebo at Routes 4 and 17 serves as a meeting room. From left to right, Lucky Abernathy, Paul Sarlo, Brian Mulcahy, Joseph Sanzari, Warren Vincentz, Rick DeNicola, and Yordan Yunis.

Gazebo atop 4-17 site piques drivers' curiosity

By DOUG MOST
Staff Writer

A doctor wants to buy it. A woman wants to decorate it. It seems everyone who drives past it wants to know who put it there and why.

The wooden gazebo sitting atop the highest point of the Routes 4 and 17 construction project is brightening a commute that for many has been an ongoing horror of swerving, cursing, and honking.

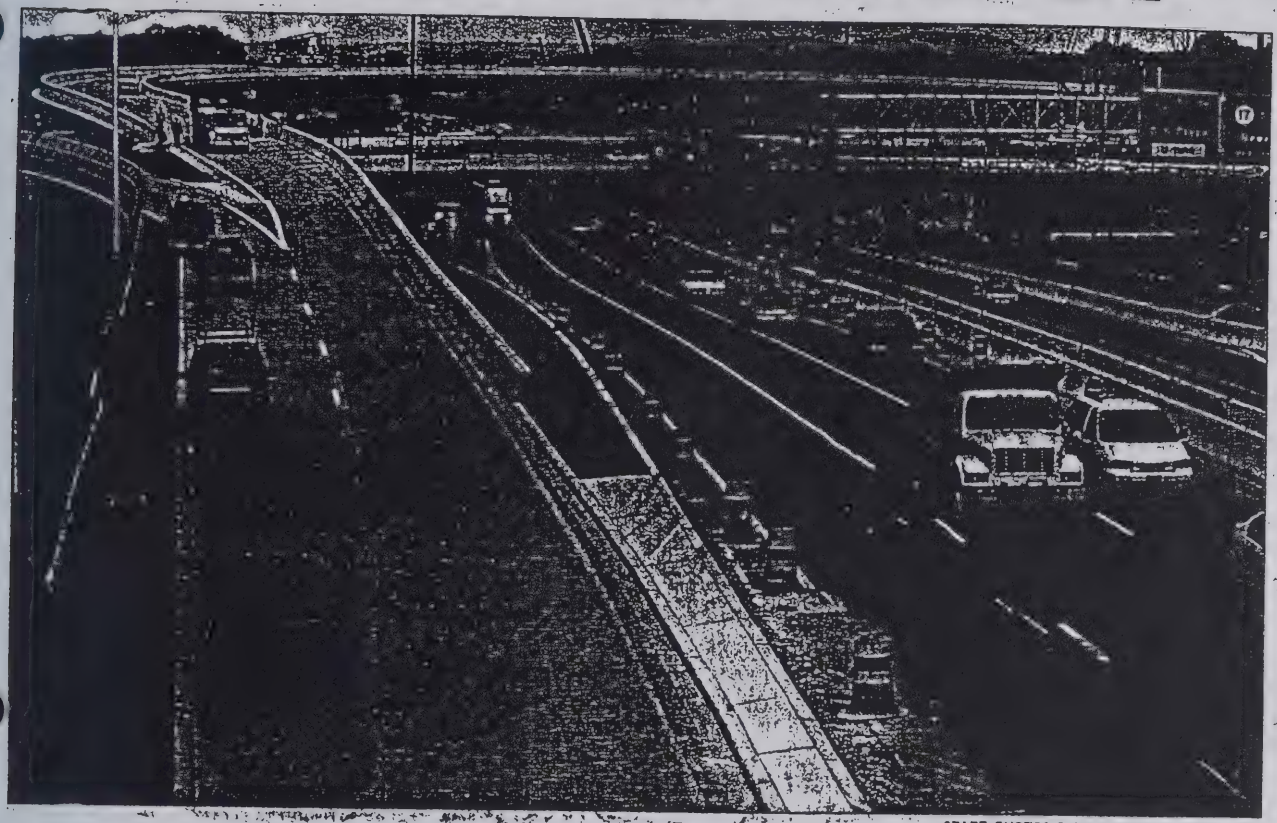
The gazebo was put there by Joseph Sanzari, project manager for the $120 million redesign of the interchange. He has turned it into his personal office — his crew calls it "The War Room" — holding a meeting every morning at 7 with his superintendents to discuss what's ahead for the day, and spending three or four hours a day there.

"From here I can see where we're going to go and what we going to do," Sanzari said.

The gazebo has generated s much interest that Sanzari sa he probably will auction it off and donate the proceeds to H ensack University Medical Center. "Some doctor called a said his wife wanted it. He sa he didn't care how much it w She wants that one."

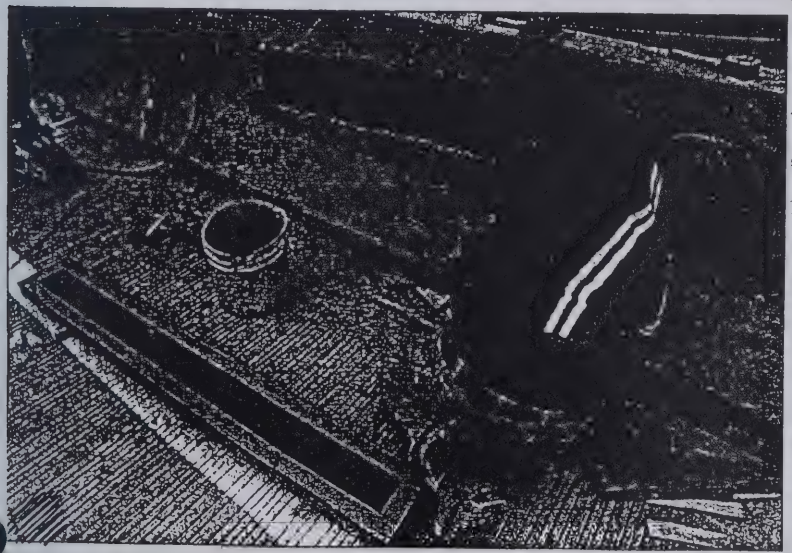
After he enclosed the gazeb with plexiglass windows, San brought in a portable generat to power a ceiling fan, a coffe maker, and a mini-refrigerato When a woman called and off to decorate the gazebo with hanging baskets, Sanzari inst surrounded it with potted plants, and hoisted the state the American flag, and a blac prisoners-of-war flag.

HIGHWAY TO HEAVEN



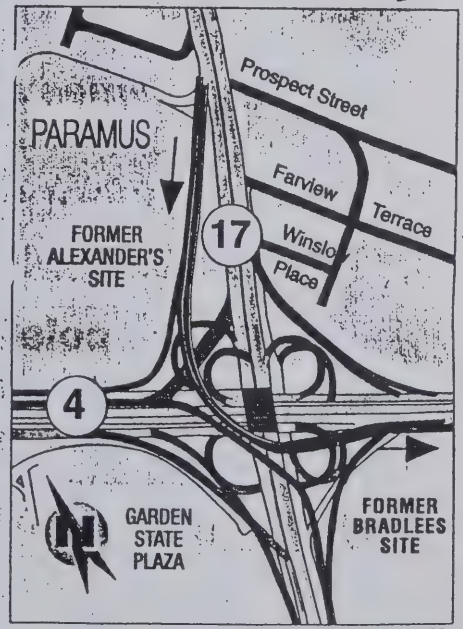
STAFF PHOTOS BY DANIELLE P. RICHARDS

The new flyover will funnel traffic from Route 17 south onto Route 4 east. The view is looking west from the Farview Avenue bridge.



Mason Jose Silva preparing to install the cornerstone on the Route 17 south-Route 4 east flyover, which is to open to traffic today after a ribbon-cutting ceremony.

Ramp opens today



RICH RAINEY/STAFF ARTIST

No more bottleneck:

Ribbon-cutting at 10:30 for Routes 4 & 17 flyove

By DOUG MOST
Staff Writer

Today, Warren Vincentz said, "the plug will come out."

State transportation officials this morning will open the new ramp in Paramus that will take motorists from Route 17 south to Route 4 east.

The ramp won't be open for this morning's rush hour. It will open around 11 a.m. after a brief ribbon-cutting ceremony scheduled for 10:30.

Among all the roads and ramps that make up the Route 4-17 cloverleaf interchange, the most heavily congested has long been the sharp loop that narrows from two lanes to one while taking motorists off Route 17 south to Route 4 east.

During a typical rush hour, traffic from 17 south fights to get to the Route 4 east ramp through the stream of vehicles merging onto Route 17 south from Route 4 west.

Once on the ramp to Route 4 east, traffic backs up because there isn't a separate lane for merging. Cars must accelerate from a crawl on the ramp into fast-moving traffic on Route 4.

All of that changes today.

The new ramp, called a flyover, will exit 17 south several hundred feet before motorists come to the interchange, and take them 40 feet above Route 4 — the highest point of the interchange. Vehicles will make a gradual left turn ar

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come down in their own lane so they won't have to merge into the right lane of Route 4 east, making for what officials hope will be a much smoother merge.

"This takes the plug out," said Vincentz, the resident engineer overseeing the $120 million redesign of the interchange for the state Department of Transportation. "This is one of the biggest components. To get onto Route 4 eastbound, you've had to go through the cloverleaf, and that backs up all of Route 17 and then the other ramps back up."

"We can't wait," said Rayna Adamos, assistant manager at Pier 1 Imports on Route 4 east, situated near where traffic will come off the new flyover ramp. "It's been such a hassle. I hope it works out."

Officials say it will work out for the simple reason that drivers will not have to slow down to merge.

The new ramp, Vincentz said, "takes motorists completely out of the interchange and they'll be over it instead. They won't have to merge or anything because they'll have their own lane. It's going to be great for the motorists."

State Transportation Commissioner James Weinstein is expected to cut the ribbon this morning.

"This project continues to make outstanding progress," Weinstein said Tuesday. "The opening of the flyover ramp finally consigns the old loop ramp to the ash heap. I know that for the 285,000 motorists who use the interchange every day, this is a welcome milestone."

The entire redesigned interchange, which carries some

DANIELLE P. RICHARDS/STAFF PHOTOGRAPHER

John Scannelli of Statewide Striping mixing thermoplastic material used to line the new Route 17 south-to-Route 4 east flyover.

za, is the core of Bergen County's traffic flow, providing access to Routes 208, 46, 287, 80, the Garden State Parkway, and the New Jersey Turnpike.

The project that began last October is done six months early.

The combination of good weather and a dogged contractor team moved work along so fast that lead contractor Joseph Sanzari told the state over the summer that he

4&17 Interchange Reconstruction – Impacts/Successes in a Nutshell

The Construction Project

Overhaul of the 4&17 Interchange	A transformation of a wilted 66-year old cloverleaf to a three-level interchange with twin fly-over ramps, an auxiliary interchange to the west to draw local traffic away from the main interchange, the widening of Route 17 and construction of several service roads.

Construction Impacts to Bergen County, NJ and surrounding Region

Critical Areas	*How Impacted*
Economic Factors	Interchange is "central" to the economic life of the Bergen County region. 285,000 vehicles travel through the interchange daily. Job base of Bergen County is more than 500,000. It is home to 40 Chambers of Commerce and 19 major Shopping Centers including Garden State Plaza which is the 5th largest mall in the US. The interchange represents the commercial and transportation hub of the region.
Major Roadways affected	The 4&17 interchange is a "connector" for one of the most densely populated regions in the country. It offers access to Routes 208 and 46, I-287 and I-80, the Garden State Parkway, the New Jersey Turnpike, and the George Washington Bridge – gateway to NY City, New England, and the rest of NJ.
Motorist Statistics	The reconstruction will impact 19,000 vehicles/buses in the peak hour or 285,000 vehicles/buses per day. The project impact costs on motorists as a whole are approximately $100,000 daily.
Area Shopping Centers	Paramus, in Bergen County, boasts that they are the "Mall-Crawl" Capital of the US where 5 major shopping centers sit within a stone's throw from the 4&17 interchange. A total of 19 major shopping centers including the Garden State Plaza, the Riverside Mall, and the Bergen Mall occupy approximately 10 million square feet. The Garden State Plaza alone measures 2 million square feet, has 20 million shoppers annually, 10,300 parking spaces, and provides about 2.5 million of tax revenue to the state. On an average day, the mall will serves approximately 40,000 vehicles. This number climbs to 100,000 daily during the holiday season. The Garden State Plaza is considered the "Epicenter" of Bergen County.
User Cost Savings	Estimated at nearly $13 million dollars based on accelerating the project.

"Innovative" Techniques implemented during the 4&17 Interchange Reconstruction that were instrumental in seeing the project completed 14 months ahead of schedule. They are broken down into the following categories: (1) Contractor/Engineering, (2) Traffic Operations/Safety, (3) Communications/Public Outreach, and, (4) Transit Services.

Contractor/Engineering Innovations:

Innovative Factors	Explanation
Contractor Incentive/Disincentive Program **	An "innovative" contract with a proposed construction time of 2.5 years rather than the 4 years as originally planned. It also contained an incentive/disincentive clause to encourage further innovation and time savings. Two $3.5 million incentive/disincentive clauses were used in the contract to encourage early completion. The project was completed in a record setting 14 months in time for the 1999 holiday shopping season.
Workforce	An "all-union" work force of 80-100 employees worked shifts of six 10-hour days with night work scheduled periodically to pour columns, lift steel, or shift traffic patterns.
Equipment	Trucks and equipment were lined up neatly in rows after being used. This saved crew members 4 hours of chasing equipment down and not missing any pieces for maintenance.
Value Engineering **	Contractor proposed substituting sheet pile for the 860 steel piles to save time, reduce lane change phases from six to two, and keep lane elevations substantially the same for traffic management. This change would eliminate much of the pile driving vibration near stores and mitigate the physical damage in an environmentally sensitive area. The innovative concept produced a time savings of 10 weeks in the structure schedule and a net savings of $280,000 which was evenly split between the contractor and the state.
Sheet Piling **	Served as a cofferdam, scour protection and support for the bridge. This saved 2-4 weeks of pile driving.
Order/Purchase of Steel	Construction schedule was launched by getting the steel orders to the specified company. Contractor took a risk and negotiated with the Steel company before his own contract was signed by the state.
Gazebo – A Friendly Welcome to Motorists	A "Gazebo" perched on one of the central ramps was built by the contractor to keep an eye on things. It became the Contractor's Headquarters and offered a welcome site to passing motorists.
Temporary Lifting-Blue Laws	Were granted to allow the Contractor to work on Sundays.

Traffic Operations/Safety-Related Innovations

Innovative Factors	Explanation
Reduction in # of Vehicle Accidents	Prior to the reconstruction, the 4&17 interchange was the cause of injury in 25% of the near 300 accidents that occurred on it annually. As a result of the reconstruction, no fatalities have been reported, accidents are reduced to a minimum, and incidents rapidly cleared.
Texas Barrier Railings **	Texas Barrier Railings were used during the creation of the flyovers. This was as a result of a quality assurance review undertaken. The barriers enhanced the safety conditions on these flyovers. In fact, immediately after installation, they were helpful in the prevention of an accident involving a large tanker truck.
Travel Lane Restrictions **	The 4&17 interchange was open to traffic throughout the construction. All lanes were available to motorists during the morning and evening rush hours. Travel lanes were also open from Thanksgiving to New Years Day due to the number of shopping areas in the vicinity of the interchange.
Maintaining Access	Access to adjacent properties, especially the businesses and retail centers, was maintained during construction.
Towing Service/Incident Management Plan **	A 24-hour emergency towing service and rapid incident management response was provided to ensure a quick response to clear disabled vehicles from the construction area.
Meetings w/Contractors and Local Police **	NJDOT's Traffic Operations North coordinated meetings with the contractor and local police agencies on a weekly basis to discuss the construction status, change in detour routes, signal timing, etc.
Safety Plan to keep Motorists informed **	On the Routes 4, 17, 80, and 208, 12 remotely programmable portable variable message signs advised motorists daily of all roadway, lane and ramp closures as well as traffic shifts. Close-Circuit Television (CCTV) locations with cameras were installed and operated by the Bergen County Police Communications Center and Highway Advisory Radio (HAR) stations were established on both routes.
Motorist Alerts/Information **	NJDOT's Traffic Operations North coordinated with other Task Force Partners such as TRANSCOM and Meadowlink to ensure that all public officials, police departments, transportation agencies, and businesses were kept informed daily about road closures, incidents, construction changes, and other traffic impacts.
Contract with Local Police **	As a result of the 4&17 Interchange Reconstruction, NJDOT now establishes "formal" contracts with local police agencies to provide traffic safety in and around the construction area on all projects.

Communications/Public Outreach/Special Events

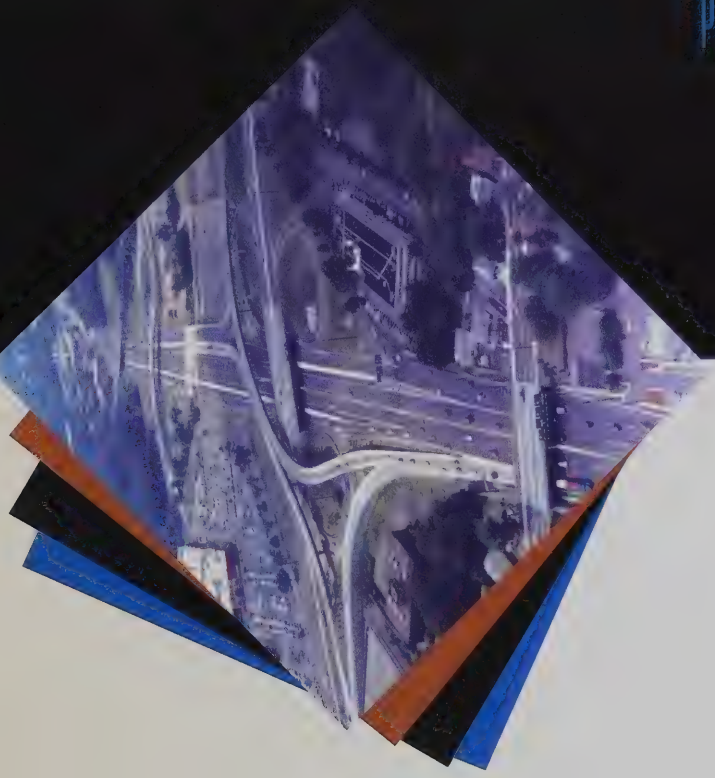
Innovative Factors	Explanation
Special Task Force Members/Role **Role:** ***Do everything we can to ensure that the daily lives of the public would not be severely impacted during the construction process.***	Legislative Districts 37, 38, 39 & 40, Congressional Districts 5 & 9, Bergen County Planning, Engineering, Freeholder, & Police Office, Bergen County Office of Highway Safety, Meadowlands and Paramus Chambers of Commerce, Fair Lawn, Paramus, Rochelle Park, and River Edge Police, Commerce & Industry Association of NJ, Shopping Centers - Garden State Plaza, Riverside Mall, Bergen Mall – NJ Retail Merchants Association, NJ State Police, FHWA, NJ TRANSIT, NJ Transportation Planning Authority, Parsons Brinckerhoff, and Bishop-Sanzari-Creamer. Meetings were held on a regular basis.
Six Special Events held based on 4&17 Construction Project **	(1) Kick-Off of 4&17 Special Task Force, (2) Groundbreaking Ceremony, (3) Employee Appreciation Ceremony honoring all those who worked on the project, (4) Construction Acceleration Agreement Announcement and Ribbon Cutting Ceremony, (5) Opening of Route 17 Southbound Flyover Ramp to Route 4 eastbound, (6) Ceremony to celebrate completion of project.
"Commuter Friendly Services" **	(1) Special Web Page for the 4&17 construction project, (2) a toll-free hotline # 1-877-NJROADS to handle customer inquiries and provide transit service information, (3) use of the network of Bergen County weekly and shopper newspapers to advertise the latest on the construction and provide commuter services information, (4) Advertise the construction project on local cable television including the weather channel, and radio traffic reports, (5) Community Outreach Programs, (6) Development of Promotional material such as posters & transit services brochures, (7) Prepare periodic status reports to distribute to Task Force Members.
Website Statistics	Approximately 2000 hits a month were recorded on NJDOT and NJ TRANSIT's 4&17 website.
Media Advertisements	Area cable television weather channel "crawls" appeared every 10 minutes, approximately 24 times a day, or 168 times a week.
4&17 Promotional Brochures **	Approximately 10,000 brochures were distributed including distribution to 874 employers. 12 municipalities were given 1,000 copies each.
Bergen County Commuter Map	NJTRANSIT and Bell Atlantic joined forces to make a commuter map available to 50,000 residents in their new telephone books.
Community Outreach Programs **	About 50 meetings were held with organizations such as Bergen County Community College, Hackensack Medical Center, Ridgewood, Paramus, and Fair Lawn Chambers of Commerce, several bus terminals and the Garden State Plaza Shopping Center.
4&17 Documentary	A Bergen County Filmmaker is working on a documentary of the construction that will be aired on television in the future.

Transit Services

Innovative Factors	Explanation
Use of Federal Highway Dollars rather than Federal Transit Dollars **	A four-million dollar bus service enhancement program was implemented to encourage bus ridership throughout the project area during construction. For the first time in New Jersey, funding was provided to a Transit Agency by the Federal Highway Administration (FHWA), rather than the Federal Transit Administration.
Bus Service Expanded **	With funding from FHWA, Transit Services were offered on a "more frequent" basis during the construction. Hours of Service on 5 major bus routes were expanded to coincide with shopping mall hours. Sunday service was provided on bus routes that normally do not run on Sundays.
Success of NJT's Expanded Service	With the inception of these expanded services in November of 1998, bus ridership levels have continued to increase. The 4&17 bus service enhancements continue to attract approximately 1400 new passengers on weekdays, 2500 new passengers on Saturdays, and 400 new passengers on Sundays. Overall, the service attracted 20,000 new riders on a monthly basis. Since completion of the Routes 4&17 Reconstruction Project in November, 1999, ridership levels have continued to show "positive" growth.
Bus Operating Revenue & Fare Box	From the period of December, 1998 through December, 1999, NJ TRANSIT accrued $731,837 in bus operating revenue from the service enhancements verses $1,304,625 in bus operating expenses for a 56% fare box recovery.
Payback to FHWA	NJ TRANSIT only billed NJDOT/FHWA $1,193,482 for bus operations and promotional activities from the $4,429,298 original funding commitment or 27% of the original committed funding.
Services remain in existence today/Current Revenue Generated on these 5 Services per month	With the success of these services, NJ TRANSIT has decided to retain many of the bus service enhancements in the post 4&17 construction era. Today, the total passengers riding these 5 bus routes average over 43,000 per month and the monthly revenue generated is about $68,000.
Vanpool Subsidy Program **	NJ TRANSIT's Vanpool Incentive Program doubled to $300 per month to encourage Bergen County residents and employees to form new vanpools to and from the Route 4&17 construction corridor.

** ***Indicates "Techniques" which remain in existence today on construction projects based on the success achieved on the Routes 4&17 Interchange Reconstruction Project.***

PHOTOS



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